

RF EXPOSURE EVALUATION

EUT Specification

EUT	Motion Security light RF LINKING
Model Number	356-9563, E23106RFWHT, SMSC0244A40AW008A (Their electrical circuit design, layout, components used and internal wiring are identical, only the model name is different. We select "356-9563" as the representative model for compliance test.)
FCC ID	2APP3-3569563-RF
Antenna gain (Max)	0.994dBi
Operation Frequency	2408 MHz, 2475 MHz
Input Rating	120Vac, 60Hz
Max. output power	2408MHz: 82.66 dBμV/m(-12.67dBm) 2475MHz: 81.91 dBμV/m(-13.39dBm)

Test Requirement:

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

11.1 Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

$P_i=3.1416$

R= distance between observation point and center of the radiator in cm=20cm

P_d the limit of MPE, $1\text{mW}/\text{cm}^2$. If we know the maximum gain of the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

Antenna gain: 0.994dBi

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
GFCK	2408	-12.67	-13 ± 1	-12	1.257	0.000016	1
	2475	-13.39	-13 ± 1	-12	1.257	0.000016	1

Signature:

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